



Wildlife Services Seeking Solutions Through Research

United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

**National Wildlife
Research Center**



Induced Infertility: A Wildlife Management Tool

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National Wildlife Research Center Scientists Study Wildlife Contraception

Wildlife Services' (WS) National Wildlife Research Center (NWRC) is the only Federal research facility devoted exclusively to resolving conflicts between people and wildlife through the development of effective, selective, and acceptable methods, tools, and techniques.

WS has given high priority to research on the reproductive management of various bird and mammal species that cause damage or threaten public health and safety. Overabundant deer populations pose a safety hazard to motorists, consume ornamental shrubs, and affect habitat quality in public parks. Rodents are hosts for a variety of diseases and cause damage to rangelands and crops resulting in the loss of millions of dollars in agricultural production. Canada



goose populations have increased markedly in recent years causing nuisance problems and health concerns in urban and suburban areas. Coyotes cause severe losses to livestock producers each year. The goal of this project is to develop and field test economical and effective agents to suppress fertility in populations of specific species that are causing conflicts.

Groups Affected by These Problems:

- Urban residents
- Airports
- Airlines
- Airline passengers
- Motorists
- Farmers
- Ranchers/livestock producers
- Natural resource managers
- Landscapers

Major Research Accomplishments:

- NWRC obtained Investigational New Animal Drug exemption from the Food and Drug Administration to allow field tests of four infertility agents.

Applying Science and Expertise to Wildlife Challenges

Wildlife Contraception—NWRC researchers have had success in testing a contraceptive on white-tailed deer at Pennsylvania State University with the injectable vaccines PZP (porcine zona pellucida) and GnRH (gonadotropin releasing hormone). Effective and economical oral infertility agents for other wildlife species, including prairie dogs, Canada geese, and coyotes are also being developed. In addition, NWRC scientists are testing the stability and viability of an oral vaccine in a variety of formulations to find the best method for delivering infertility agents.

"Solutions to Problems Depend Upon Knowledge Which Only Research Can Provide"

Field Situations—Presently, NWRC has two Investigational New Animal Drug (INAD) permits for the PZP and GnRH injectable vaccines, which allow white-tailed deer contraception research to take place in field situations. Testing of the oral infertility agents will be conducted in either large fenced areas or field situations as products evolve and field sites are identified with populations of deer.



Selected Publications:

- Miller, L.A., and G. Killian. 2002. In search of active PZP epitope in white-tailed deer immunocontraception. *Vaccine* 20:2735-2742.
- Fagerstone, K.S., M.S. Coffey, P.D. Curtis, R.A. Dolbeer, G.J. Killian, L.A. Miller, and L.M. Wilmot. 2002. Wildlife fertility control. Technical Review. The Wildlife Society, Bethesda, Maryland, USA.
- Miller, L.A., K. Crane, S. Gaddis, and G.J. Killian. 2001. PZP immunocontraception: Long-term health effects on white-tailed deer. *Journal of Wildlife Management* 65:941-945.
- Miller, L.A. and K.A. Fagerstone. 2000. Induced infertility as a wildlife management tool. 19th Vertebrate Pest Conference 19:160-168.
- Miller, L.A., B.E. Johns, and G.J. Killian. 2000. Immunocontraception of white-tailed deer with GnRH vaccine. *Journal of Reproductive Immunology* 44:266-274.